

IN THE CLAIMS

The following is a complete listing of the claims. This listing replaces all earlier versions and listings of the claims.

Claim 1 (currently amended): An information processing apparatus comprising:

a plurality of input means for inputting different types of information;

storage means for storing information input from each of said plurality of input means with an input time thereof;

sorting means for sorting at least two types of information stored in said storage means in an order in accordance with the input time ~~by the input time thereof~~;

and

input analyzing means for analyzing a sequence of the at least two types of information sorted in the input time order by said sorting means.

Claim 2 (original): An information processing apparatus according to claim 1, wherein said input analyzing means includes:

input information concept instance generating means for generating a concept instance from each piece of the input information; and

concept instance unifying means for unifying a plurality of generated concept instances.

Claim 3 (previously amended): An information processing apparatus according to claim 2, wherein the concept instance includes a type of a slot and an instance corresponding to the type of the slot.

Claim 4 (previously amended): An information processing apparatus according to claim 2, further comprising:

a database for storing the input information and information necessary for generating the concept instance, in one-to-one correspondence; and
retrieving means for retrieving information necessary for generating the concept instance corresponding to the input information from said database,
wherein said input information concept instance generating means generates the concept instance in accordance with the information retrieved from said database.

Claim 5 (previously amended): An information processing apparatus according to claim 4, wherein said database stores a concept type, a rule necessary for the concept instance, and a rule necessary for a surface layer word, respectively, corresponding to a surface layer character string.

Claim 6 (previously amended): An information processing apparatus according to claim 5, wherein said unifying means unifies the concept instances in accordance with the rules stored in said database.

Claim 7 (original): An information processing apparatus according to claim 6, wherein said database stores, as a definition of a concept, a slot type of a slot which the concept instance can have, and a rule which is required to be satisfied by the instance corresponding to the slot.

Claim 8 (original): An information processing apparatus according to claim 7, wherein said unifying means unifies the concept instances in accordance with the rule designated by the definition of the concept corresponding to the type of the concept of the concept instance.

Claim 9 (original): An information processing apparatus according to claim 6, wherein said unifying means selects an applicable request in accordance with requirements of a plurality of rules, applies the selected request and unifies the concept instances.

Claim 10 (original): An information processing apparatus according to claim 2, further comprising:

state acquiring means for acquiring a state at an input timing,
wherein said input information concept instance generating means generates the concept instance in accordance with the state acquired by said state acquiring means.

Claim 11 (previously amended): An information processing apparatus according to claim 2, further comprising state storage means for storing a past state,

wherein said input information concept instance generating means generates the concept instance in accordance with the past state read from said state storage means.

Claim 12 (original): An information processing apparatus according to claim 1, wherein said input means can input key information.

Claim 13 (original): An information processing apparatus according to claim 12, wherein said input means can input character information by converting the key information.

Claim 14 (original): An information processing apparatus according to claim 1, wherein said input means can input speech information.

Claim 15 (original): An information processing apparatus according to claim 14, wherein said input means can input character information by recognizing the speech information and converting the speech information into character information.

Claim 16 (original): An information processing apparatus according to claim 1, wherein said input means can optically input image information.

Claim 17 (original): An information processing apparatus according to claim 16, wherein said input means can input character information of the image information by optically recognizing the image information.

Claim 18 (original): An information processing apparatus according to claim 1, wherein said input means can input hand-written information.

Claim 19 (original): An information processing apparatus according to claim 18, wherein said input means can input the hand-written character information by recognizing the hand-written character information on line.

Claims 20-22 (canceled)

Claim 23 (currently amended): An information processing method comprising:

an input step, of inputting different types of information by a plurality of input units;

a storing step, of storing information input by said input step with an input time thereof in a storage unit;

a sorting step, of sorting at least two types of information stored in the storage unit in an order in accordance with the input time ~~by the input time thereof~~; and

an input analyzing step, of analyzing a sequence of the at least two types of information sorted in the input time order in said sorting step.

Claim 24 (previously amended): An information processing method according to claim 23, wherein said input analyzing step includes:

an input information concept instance generating step, of generating a concept instance from each piece of the input information; and

a concept instance unifying step, of unifying a plurality of generated concept instances.

Claim 25 (previously amended): An information processing method according to claim 24, wherein the concept instance includes a type of a slot and an instance corresponding to the type of the slot.

Claim 26 (previously amended): An information processing method according to claim 24, further comprising:

a retrieving step, of retrieving information necessary for generating the concept instance corresponding to the input information, from a database for storing the input information and information necessary for generating the concept instance, in one-to-one correspondence, wherein said input information concept instance generating step generates the concept instance in accordance with the information retrieved from the database.

Claim 27 (previously amended): An information processing method according to claim 26, wherein the database stores a concept type, a rule necessary for the concept instance, and a rule necessary for a surface layer word, respectively, corresponding to a surface layer character string.

Claim 28 (previously amended): An information processing method according to claim 24, wherein said unifying step unifies the concept instances in accordance with the rules stored in the database.

Claim 29 (original): An information processing method according to claim 28, wherein the database stores, as a definition of a concept, a slot type of a slot which the concept instance can have, and a rule which is required to be satisfied by the instance corresponding to the slot.

Claim 30 (original): An information processing method according to claim 29, wherein said unifying step unifies the concept instances in accordance with the rule designated by the definition of the concept corresponding to the type of the concept of the concept instance.

Claim 31 (original): An information processing method according to claim 28, wherein said unifying step selects an applicable request in accordance with requirements of a plurality of rules, applies the selected request and unifies the concept instances.

Claim 32 (previously amended): An information processing method according to claim 24, further comprising:

a state acquiring step, of acquiring a state at an input timing, wherein said input information concept instance generating step generates the concept instance in accordance with the state acquired in said state acquiring step.

Claim 33 (previously amended): An information processing method according to claim 24, further comprising a state storing step, of storing a past state, wherein said input information concept instance generating step generates the concept instance in accordance with the past state read in said state storing step.

Claim 34 (original): An information processing method according to claim 23, wherein said input step can input key information.

Claim 35 (original): An information processing method according to claim 34, wherein said input step can input character information by converting the key information.

Claim 36 (original): An information processing method according to claim 23, wherein said input step can input speech information.

Claim 37 (original): An information processing method according to claim 36, wherein said input step can input character information by recognizing the speech information and converting the speech information into character information.

Claim 38 (original): An information processing method according to claim 23, wherein said input step can optically input image information.

Claim 39 (original): An information processing method according to claim 38, wherein said input step can input character information of the image information by optically recognizing the image information.

Claim 40 (original): An information processing method according to claim 23, wherein said input step can input hand written information.

Claim 41 (original): An information processing method according to claim 40, wherein said input step can input the hand-written character information by recognizing the hand-written character information on line.

Claims 42-44 (canceled)

Claim 45 (currently amended): A computer-readable storage medium storing an information processing program for controlling a computer to perform information processing, said program comprising:

code for an input step, of inputting different types of information;

code for a storing step, of storing information input by said input

code with an input time thereof in a storage unit;

code for a sorting step, of sorting at least two types of information stored in the storage unit in an order in accordance with the input time ~~by the input time~~ thereof; and

code for an input analyzing step, of analyzing a sequence of the at least two types of information sorted in the input time order by said sorting code.